

U.S. Patent Application No. 09/955,554
Amendment After Final Rejection dated February 17, 2006
In Response to Final Office Action Dated November 18, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-45. (Canceled)

46. (Currently amended) ~~The A system of Claim 45, further for storing and dispensing a plurality of reagents, comprising:~~

an addressable array of reagent dispensers;

a gate mechanism at an outlet region of each dispenser, each gate mechanism being independently operable between (i) an opened condition permitting passage of a respective reagent through said outlet region and (ii) a closed condition wherein said passage is blocked;

a first support disposed adjacent said array;

a second support mounted on said first support, said second support having a holding area for receiving a plurality of receptacles, wherein (i) said first support is variably positionable to permit placement of a fixed target region thereof in alignment with any selected one of said dispensers in said array, and (ii) said second support is variably positionable to permit placement of any selected target site of said holding area in alignment with said fixed target region;

a plurality of different reagents disposed in said dispenser passageways;

a plurality of bead lots, each lot comprised of a plurality of substantially similar beads carrying a respective one of said different reagents and moveable through said outlet region; and

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a plurality of sealed ampules, said ampules being dimensioned to move downward through any one of said passageways under the force of gravity in a substantially single-file fashion;

wherein said dispensers are elongated containers, each having a longitudinally extending passageway configured to receive and hold a respective reagent when said gate mechanism is in the closed condition, each bead has a diameter of less than about a millimeter, wherein each ampule contains beads from the same or substantially identical lots, and wherein each passageway is loaded with a plurality of such ampules.

47. (Canceled)

48. (Previously presented) A system for storing and dispensing a plurality of reagents, comprising:

an addressable array of reagent dispensers;

a gate mechanism at an outlet region of each dispenser, each gate mechanism being independently operable between (i) an opened condition permitting passage of a respective reagent through said outlet region and (ii) a closed condition wherein said passage is blocked;

a first support disposed adjacent said array;

a second support mounted on said first support, said second support having a holding area for receiving a plurality of receptacles, wherein (i) said first support is variably positionable to permit placement of a fixed target region thereof in alignment with any selected one of said dispensers in said array, and (iii) said second support is variably positionable to permit placement of

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any selected target site of said holding area in alignment with said fixed target region; and

a detection assembly having a field of view extending between said dispenser outlet regions and said second support, and adapted to detect the passage of reagent dispensed from any one of said dispersers.

49. (Currently amended) The system of Claim 48, wherein said detection assembly includes:

(i) a radiation emitter that is (a) mounted on said first support at a region along one side of said second support, and (b) configured to project a substantially linear radiation beam along a pathway that passes over said fixed target region of said first support; and

(ii) a radiation sensor that is (a) mounted on said first support at a region along an opposing side of said second support, and (b) disposed within said radiation-beam pathway.

50-51. (Canceled)

52. (Currently amended) ~~The A system of Claim 51, for storing and dispensing a plurality of reagents, comprising:~~

a addressable array of reagent dispensers;

a gate mechanism at an outlet region of each dispenser, each gate mechanism being independently operable between (i) an opened condition permitting passage of a respective reagent through said outlet region and (ii) a closed condition wherein said passage is blocked;

a first support disposed adjacent said array;

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a second support mounted on said first support, said second support having a holding area for receiving a plurality of receptacles, wherein (i) said first support is variably positionable to permit placement of a fixed target region thereof in alignment with any selected one of said dispensers in said array, and (ii) said second support is variably positionable to permit placement of any selected target site of said holding area in alignment with said fixed target region; and

a release mechanism positionable near any one of said gate mechanisms and operable to apply a secondary force of a magnitude and direction effective to override the normal biasing force so that the gate mechanism assumes the opened condition;

wherein each gate mechanism is subject to a normal biasing force that urges it to the closed position, thereby preventing the passage of reagent through a respective outlet region, and wherein each gate mechanism includes a magnetic pinch valve having first and second magnets (i) that are pivotally mounted in facing relation at a respective outlet region and (ii) that have lower, confronting north and south pole regions, respectively, that are normally urged toward one another by magnetic forces so as to pivot said magnets to the closed condition.

53. (Previously presented) The system of Claim 52,

wherein said release mechanism is an electromagnet positioned adjacent said radiation-beam pathway, said electromagnet operable to generate said secondary force as a magnetic force having south and north pole portions disposed to attract the north and south pole lower regions of said first and second magnets, respectively, so that said lower regions pivot away from one another.

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54. (Canceled)

55. (Currently amended) ~~The A system of claim 54, for storing and dispensing a plurality of reagents, comprising:~~

an addressable array of reagent dispensers;

a gate mechanism at an outlet region of each dispenser, each gate mechanism being independently operable between (i) an opened condition permitting passage of a respective reagent through said outlet region and (ii) a closed condition wherein said passage is blocked;

a first support disposed adjacent said array;

a second support mounted on said first support, said second support having a holding area for receiving a plurality of receptacles, wherein (i) said first support is variably positionable to permit placement of a fixed target region thereof in alignment with any selected one of said dispensers in said array, and (ii) said second support is variably positionable to permit placement of any selected target site of said holding area in alignment with said fixed target region; and

a release mechanism positionable near any one of said gate mechanisms and operable to apply a secondary force of a magnitude and direction effective to override the normal biasing force so that the gate mechanism assumes the opened condition;

wherein each gate mechanism is subject to a normal biasing force that urges it to the closed position, thereby preventing the passage of reagent through a respective outlet region, wherein said release mechanism is a rod adapted for motion from a retracted position to an extended position adjacent said radiation-beam pathway, said rod adapted to apply said secondary force as a

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mechanical force by engaging and deflecting said lever, when moved to said extended position, so that said protrusion is at least partially withdrawn from said outlet region, and each gate mechanism is a resiliently deflectable lever having a protrusion normally extending into a respective outlet region.

56. (Previously presented) A system for storing and dispensing a plurality of reagents, comprising:

an addressable array of reagent dispensers;

a gate mechanism at an outlet region of each dispenser, each gate mechanism being independently operable between (i) an opened condition permitting passage of a respective reagent through said outlet region and (ii) a closed condition wherein said passage is blocked;

a first support disposed adjacent said array;

a second support mounted on said first support, said second support having a holding area for receiving a plurality of receptacles, wherein (i) said first support is variably positionable to permit placement of a fixed target region thereof in alignment with any selected one of said dispensers in said array, and (iii) said second support is variably positionable to permit placement of any selected target site of said holding area in alignment with said fixed target region; and

a guide member located over said fixed target region of said first support, between said dispenser array and said second support;

said guide member (i) disposed for movement with said first support to a position under any selected dispenser, and (ii) configured to channel reagent dispensed from such dispenser to a

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selected site on said holding area of said second support.

57. (Currently amended) The system of Claim 56, wherein said guide member includes:

- (i) an upper opening alignable with any one of said outlet regions for receiving reagent dispensed therefrom;
- (ii) a lower opening, smaller than said upper opening, through which dispensed reagent may egress in route to said holding area; and
- (iii) a conical portion between said upper and lower openings.